

Application No. 09/945,200

Amendment dated Apr. 5, 2005

Reply to Office action of January 5, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A wireless communications device for receiving and sending incoming and outgoing transmissions, said transmissions including digitally-encoded data and error-correcting coding for the digitally-encoded data, comprising:

a receiver operable to receive the incoming transmissions;
a transmitter operable to send the outgoing transmissions over a first transmission range;
and

an error-correcting coding mechanism operable to vary a level of the error-correcting coding applied to the digitally-encoded data within the outgoing transmissions, such that the first transmission range is effectively increased up to a maximum transmission range corresponding to a maximum level of error-correcting coding.

wherein an access code portion of outgoing transmissions sent by the wireless communications device is reserved to notify the second wireless communications device that the outgoing transmissions have an increased level of error-correcting coding.

2. (Original) The wireless communications device of claim 1, wherein the error-correcting coding mechanism is additionally operable to decode varying levels of error-correcting coding applied to the incoming transmissions.

3. (Original) The wireless communications device of claim 1, wherein a first portion of the outgoing transmissions contains information to notify the second wireless communications device that a remaining portion of the outgoing transmissions have an increased level of error-correcting coding.

4. (Original) The wireless communications device of claim 3, wherein a first portion of the incoming transmissions contain information to notify the wireless communications device that a remaining portion of the incoming transmission has an increased level of error-correcting coding.

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5. (Original) The wireless communications device of claim 1, wherein the error-correcting coding mechanism is activated when the receiver does not receive an anticipated incoming reply transmission from the second wireless communications device.

6. (Original) The wireless communications device of claim 1, wherein the wireless communications device and the second wireless communications device implement the Bluetooth specification for transmitting and receiving data.

7. (Cancelled) The wireless communications device of claim 6, wherein an access code portion of outgoing transmissions sent by the wireless communications device is reserved to notify the second wireless communications device that the outgoing transmissions have an increased level of error-correcting coding.

8. (Currently Amended) The wireless communications device of claim 1 ~~7~~, wherein the reserved access code portion is a reserved dedicated inquiry access code.

9. (Original) The wireless communications device of claim 8, wherein the digitally encoded data comprises a digitally-encoded data packet including an access code portion, a header portion and a payload portion.

10. (Original) The wireless communications device of claim 9, wherein the error-correcting coding mechanism is activated when the second wireless communications device is outside the first transmission range, such that the data packet is re-encoded, prefixed with the reserved dedicated inquiry access code and re-sent with a pre-determined increase in error-correcting coding.

11. (Original) The wireless communications device of claim 10, wherein the reserved dedicated inquiry access code contains information indicating a level of the pre-determined increase in error-correcting coding.

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12. (Currently Amended) A method for sending a transmission from a wireless device, the method comprising:

detecting that a recipient device is outside of a transmission range of the wireless device;
encoding digital data to be transmitted using enhanced error-correcting coding beyond a standard level of error-correcting coding;
notifying the recipient device that following data will contain enhanced error-correcting coding, said notifying comprising reserving an access code portion of the transmission for the notification of enhanced error-correcting coding; and
sending the encoded digital data.

13. (Original) The method of claim 12, said detecting whether a recipient device is outside of a transmission range of the wireless device further comprising:

failing to detect a reply transmission from the recipient device.

14. (Original) The method of claim 12, said detecting that a recipient device is outside of a transmission range of the wireless device further comprising:

detecting a drop in signal strength in a reply transmission from the recipient device as the recipient device and the wireless device move relative to one another.

15. (Original) The method of claim 12, said encoding data to be transmitted using enhanced error-correcting coding beyond a standard level of error-correcting coding further comprising:

re-encoding previously-sent data using the enhanced error-correcting coding.

16. (Cancelled) The method of claim 15, said notifying the recipient device that following data will contain enhanced error-correcting coding further comprising:

reserving an access code portion of the transmission for the notification of enhanced error-correcting coding.

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17. (Currently Amended) The method of claim 12-16, wherein the access code portion is a dedicated inquiry access code portion.

18. (Original) The method of claim 17, said notifying the recipient device that following data will contain enhanced error-correcting coding further comprising:

prefixing the re-encoded previously-sent data with the reserved dedicated inquiry access code portion.

19. (Original) The method of claim 12, said detecting that a recipient device is outside of a transmission range of the wireless device further comprising:

searching for a third wireless device that is available to serve as a forwarding device for forwarding the transmission from the wireless device to the recipient wireless device.

20. (Original) The method of claim 12, further comprising:

searching for a second device operable to continue receiving communications from the recipient device; and

transferring communications from the recipient device to the second device.

21. (Currently Amended) An article of manufacture, which comprises a computer readable medium having stored therein a computer program carrying out a method for sending a transmission from a wireless device, the computer program comprising:

a first code segment for encoding, in response to an indication that a recipient device has been detected to be outside of a transmission range of the wireless device, a message using enhanced error-correcting coding beyond a predefined standard level of encoding, to thereby effectively increase the transmission range of the wireless device; and

a second code segment for generating a notification for transmission to the recipient device that the message will contain enhanced error-correcting coding,

wherein the message is a data packet comprising an access code portion, a header portion and a payload portion, and

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wherein a dedicated inquiry access code portion is appended to a beginning portion of the access code portion.

22. (Cancelled) The article of manufacture of claim 21, wherein the message is a data packet comprising an access code portion, a header portion and a payload portion.

23. (Cancelled) The article of manufacture of claim 22, wherein a dedicated inquiry access code portion is appended to a beginning portion of the access code portion.

24. (Currently Amended) The article of manufacture of claim 21 ~~23~~, wherein the dedicated inquiry access code portion contains the notification generated by the second code segment.

25. (Original) The article of manufacture of claim 24, wherein a user of the wireless device is notified of a use of the first and second code segments during their operation.

26. (Original) The article of manufacture of claim 21, wherein the wireless device, including the first and second code segments, operate according to the Bluetooth specification.

27. (Currently Amended) A method for extending a transmission range of a wireless device, the method comprising:

encoding data using a first error correction code when the wireless device is within a first transmission range of a recipient device;

detecting that the wireless device is outside said first transmission range; and

encoding messages using a second error correction code when the wireless device is outside said first transmission range,

wherein a dedicated inquiry access code portion of transmitted data is reserved to identify the recipient device and notify the recipient device of the second error correction code when it is utilized by the wireless device.

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28. (Original) The method of claim 27, wherein said second error correction code provides greater error correction capacity than said first error correction code.

29. (Currently Amended) The method of claim 27, wherein the wireless device implements the Bluetooth specification, and further wherein a dedicated inquiry access code portion of transmitted data is reserved to identify the recipient device and notify the recipient device of the second error correction code when it is utilized by the wireless device.

30. (Original) A wireless communications system, comprising:

a first wireless device having a first transmission range and a first error-correcting coding means; and

a second wireless device having a second transmission range,

wherein, when the first wireless device moves outside of the first transmission range relative to the second wireless device, the first error-correcting coding means increases the first transmission range by increasing the level of error-correcting coding applied to transmissions sent from the first wireless device to the second wireless device,

wherein a dedicated inquiry access code portion of transmitted data is reserved to identify the second wireless device and notify the second wireless device of the second error correction code when it is utilized by the first wireless device.

31. (Original) The wireless communications system of claim 30, wherein at least some transmissions within the system are sent and received according to the Bluetooth specification.

32. (Original) The wireless communications system of claim 31, wherein a user of the first wireless device is notified of the increased level of error-correcting coding, whereby the user may choose to end the transmission using the increased level of error-correcting coding or move back into the first transmission range.

33. (Original) The wireless communications system of claim 31, wherein the wireless communications device and the second wireless communications device are part of a wireless

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network of communications devices, at least some of which are portable, and further wherein the increased effective transmission range is temporarily utilized when the wireless communications device exceeds the first transmission range, in order to maintain contact between the two wireless communications devices until one of the remaining network devices can begin to forward data between the two wireless communication devices.